

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A carbon-containing component comprising a protective coating, wherein the carbon-containing component ~~includes~~ is selected from the group consisting of graphite, amorphous carbon, carbon fibers, and carbon-carbon composites, ~~or a combination thereof~~; and

5 wherein the protective coating comprises a material selected from the group consisting of:

 non-stoichiometric compounds of silicon and carbon;
 compounds of silicon, oxygen, and carbon;
 compounds of silicon, oxygen and nitrogen;
10 compounds of silicon, nitrogen, and carbon;
 compounds of silicon, oxygen, nitrogen, and carbon; and
 silicon.

2-4. (Cancelled)

5. (Original) The carbon-containing component of claim 1, wherein said protective coating has a coefficient of thermal expansion which is less than the coefficient of thermal expansion of silicon carbide (SiC).

6-9. (Cancelled)

10. (Original) The carbon-containing component of claim 1, wherein carbon-containing component comprises a plate-fin heat exchanger.

11. (Original) The carbon-containing component of claim 1 wherein said protective coating has a graded composition through its thickness.

12. (Cancelled)

13. (Currently amended) A carbon-containing component comprising a protective coating, wherein the carbon-containing component ~~includes~~ is selected from the group consisting of graphite, amorphous carbon, carbon fibers, and carbon-carbon composites, ~~or a combination thereof~~; and

5 wherein the protective coating comprises a material selected from the group consisting of:

silicon (Si);

silicon carbide (SiC_y); silicon oxycarbide (SiO_xC_y);

silicon oxynitride (SiO_xN_z);

10 silicon carbonitride (SiC_yN_z); and

silicon oxycarbonitride ($\text{SiO}_x\text{C}_y\text{N}_z$);

wherein $x < 2$, $y < 1$ and $z < 4/3$, and at least one of x, y, and z is greater than zero, and wherein the coefficient of thermal expansion of said protective coating is less than the coefficient of thermal expansion of silicon
15 carbide (SiC).

14-21. (Cancelled)

22. (Currently Amended) A carbon-containing component comprising a protective coating, wherein the carbon-containing component ~~includes~~ is selected from the group consisting of graphite, amorphous carbon, carbon fibers, and carbon-carbon composites, ~~or a combination thereof~~; and

5 wherein said protective coating comprises at least one material selected from the group consisting of:

10

non-stoichiometric compounds of silicon and carbon;
non-stoichiometric compounds of silicon and oxygen;
non-stoichiometric compounds of silicon and nitrogen;
compounds of silicon, oxygen, and carbon;
compounds of silicon, oxygen, and nitrogen;
compounds of silicon, nitrogen, and carbon;
compounds of silicon, oxygen, nitrogen, and carbon; and
silicon.

23. (Previously presented) The carbon-containing component of claim 22, wherein said protective coating comprises at least two layers, wherein each of said layers comprises a material selected from said group.

24. (Previously presented) The carbon-containing component of claim 23, wherein each of said layers comprises a compound selected from the group consisting of silicon carbide (SiC_y); silicon oxycarbide (SiO_xC_y); silicon carbonitride (SiC_yN_z); and silicon oxycarbonitride ($\text{SiO}_x\text{C}_y\text{N}_z$), wherein $x < 2$, $y < 1$ and $z < 4/3$, and at least one of x , y , and z is greater than zero.

25. (Previously presented) The carbon-containing component of claim 24, wherein at least a portion of the carbon (C) in said compound of said layers is chemically bound.

26. (Previously presented) The carbon-containing component of claim 22, wherein said carbon-containing component comprises a plate-fin heat exchanger.

27. (Previously presented) The carbon-containing component of claim 22, wherein said protective coating is applied directly to a surface of said carbon-containing component.

28. (Original) The carbon-containing component of claim 22, wherein said protective coating has a coefficient of thermal expansion which is less than the coefficient of thermal expansion of silicon carbide (SiC).